



**ORANGE COVE IRRIGATION DISTRICT**  
**Water Management Plan**  
**Including DWR Supplemental Information**

**August 25, 2017**

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## Section I: Description of the District

*District Name:* **Orange Cove Irrigation District**

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### A. History

1. *Date district formed:* 1937      *Date of first Reclamation contract:* 1949  
*Original size (acres):* 12,587      *Current year (last complete calendar year):* 2015

2. *Current size, population, and irrigated acres*

<b>2015</b>	
<i>Size (acres)</i>	27,962
<i>Population served (urban connections)</i>	362
<i>Irrigated acres</i>	25,796

3. *Water supplies received in current year*

<b>Water Source</b>	<b>AF</b>
<i>Federal urban water (Tbl 1)</i>	
<i>Federal agricultural water (Tbl 1)</i>	3,152
<i>State water (Tbl 1)</i>	
<i>Other Wholesaler (define) (Tbl 1)</i>	
<i>Local surface water (Tbl 1)</i>	
<i>Upslope drain water (Tbl 1)</i>	
<i>Private groundwater (Tbl 2)</i>	506
<i>Banked water (Tbl 1)</i>	
<i>Transferred water (Tbl 1)</i>	5,805
<i>Recycled water (Tbl 3)</i>	
<i>Total</i>	9,463

4. *Annual entitlement under each right and/or contract*

	<b>AF</b>	<b>Source</b>	<b>Contract #</b>	<b>Availability period(s)</b>
<i>Reclamation Agriculture</i>	39,200	USBR	175r-1672D	No restrictions

5. *Anticipated land-use changes. For Ag contractors, also include changes in irrigated acres.*

None

## 6. Cropping Patterns

List of current crops (crops with 5% or less of total acreage) can be combined in the 'Other' category.

<b>Original Plan 2002</b>		<b>Previous Plan 2009</b>		<b>Current Plan</b>	
<b>Crop Name</b>	<b>Acres</b>	<b>Crop Name</b>	<b>Acres</b>	<b>Crop Name</b>	<b>Acres</b>
Citrus	18,168	Citrus	21,051	Citrus	20,600
Fruits & Nuts	3,096	Fruits & Nuts	2,477	Fruits & Nuts	2,324
Grapes	1,872	Grapes	1,100	Grapes	959
		Olives	876	Olives	751
		Forage	940	Forage	589
		Fallow	884	Fallow	2,166
Other (<5%)		Other (<5%)	229	Other (<5%)	573
<b>Total</b>	<b>23,894</b>	<b>Total</b>	<b>27,557</b>	<b>Total</b>	<b>27,962</b>

(See Planner, Chapter 3, Addendum D for list of crop names)

## 7. Major irrigation methods (by acreage) (Agricultural only)

<b>Original Plan 2002</b>		<b>Previous Plan 2009</b>		<b>Current Plan</b>	
<b>Irrigation Method</b>	<b>Acres</b>	<b>Irrigation Method</b>	<b>Acres</b>	<b>Irrigation Method</b>	<b>Acres</b>
Furrow	6,338	Furrow	5,196	Furrow	3,196
Border	430	Border	502	Border	238
Low Volume Mister/Drip/Micro Jet	16,726	Low Volume Mister/Drip/Micro Jet	20,876	Low Volume Mister/Drip/Micro Jet	22,166
		Sprinkler	983	Sprinkler	2,362
<b>Total</b>	<b>23,894</b>	<b>Total</b>	<b>27,557</b>	<b>Total</b>	<b>27,962</b>

## B. Location and Facilities

See Attachment A for maps containing the following: incoming flow locations, turnouts (internal flow), and outflow (spill) points, conveyance system, storage facilities, operational loss recovery system, district wells and lift pumps, water quality monitoring locations, and groundwater facilities.

### 1. Incoming flow locations and measurement methods

<b>Location Name</b>	<b>Physical Location Friant Kern Canal Mile Post</b>	<b>Type of Measurement Device</b>	<b>Accuracy</b>
1 North	35.85	Venturi	1%
1A/1B/1AE	35.87	Venturi	1%
2	36.79	Venturi	1%
3	38.74	Venturi	1%
4	39.82	Venturi	1%
5	41.76	Venturi	1%
6	42.89	Venturi	1%
7	44.56 Right Bank	Venturi	1%
8	44.56 Left Bank	Venturi	1%
9	45.46	Venturi	1%
10	47.03	Venturi	1%

11	48.58	Venturi	1%
12	50.38	Venturi	1%
13	51.62	Venturi	1%
14	53.32	Venturi	1%

2. Current year Agricultural Conveyance System

<i>Miles Unlined - Canal</i>	<i>Miles Lined - Canal</i>	<i>Miles Piped</i>	<i>Miles - Other</i>
		116	

3 Current year Urban Distribution System

<i>Miles AC Pipe</i>	<i>Miles Steel Pipe</i>	<i>Miles Cast Iron Pipe</i>	<i>Miles - Other</i>

4. Storage facilities (tanks, reservoirs, regulating reservoirs)

<i>Name</i>	<i>Type</i>	<i>Capacity (AF)</i>	<i>Distribution or Spill</i>
3A	Reservoir	10	Distribution
8	Reservoir	26	Distribution
11A	Reservoir	8	Distribution
13	Reservoir	15	Distribution

5. Description of the agricultural spill recovery system and outflow points.

The District is a completely piped / pressurized system and there is no operational spill or need for recovery system.

The District is primarily micro irrigation and what little amount is furrow irrigated, water is collected in tail water basins and reused on the same farm.

6. Agricultural delivery system operation (check all that apply)

<i>Scheduled</i>	<i>Rotation</i>	<i>Other (describe)</i>
X		

7. Restrictions on water source(s)

<i>Source</i>	<i>Restriction</i>	<i>Restriction Cause</i>	<i>Effect on Operations</i>
Friant-Kern Canal	Hydrology/Delta Operations/Environmental Redistribution	Water Made Available – BOR discretion	Discretion of Reclamation can be significant. 2014 and 2015 Discretion led to ZERO Allocation

8. Proposed changes or additions to facilities and operations for the next 5 years

None

## C. Topography and Soils

1. Topography of the district and its impact on water operations and management.

The terrain is sloping to the west from the Sierra Nevada foothills. The average slope is 5 to 10 feet per mile. Most soils range in texture classification from a sandy loam with

intake characteristics ranging from moderately low. There is little impact from the soils or topography on water management practices.

2. *District soil association map (Agricultural only)*  
See Attachment A, District Soils Map

3. *Agricultural limitations resulting from soil problems (Agricultural only)*

<i>Soil Problem</i>	<i>Estimated Acres</i>	<i>Effect on Water Operations and Management</i>
Salinity	0	none
High-water table	200	none
High or low infiltration rates	2,000	none
Other (define)		none

## **D. Climate**

1. *General climate of the district service area*

<b>Climate Factor</b>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Annual</i>
<i>Avg. Precip.</i>	2.68	2.2	2.4	0.83	0.43	0.08	0	0.04	0.2	0.67	1.38	1.42	12.33
<i>Avg. Temp.</i>	46	54	60	62	67	81	82	81	76	68	49	43	64
<i>Max. Temp.</i>	58	68	76	77	82	97	96	96	91	82	62	55	78
<i>Min. Temp.</i>	37	42	43	43	50	61	66	63	60	55	38	33	49
<i>ETo</i>	1.21	1.99	4.47	5.94	7.04	8.95	9.03	8.46	6.19	4.08	1.97	1.22	60.55

*Weather station ID* CIMIS # 142 – Orange Cove *Data period: Year* 2015 *to Year*

2016 *ET Station ID* CIMIS # 142 – Orange Cove *Average annual frost-free days:* 353

*Frost Free Days* - According to National Oceanic and Atmospheric Administration (NOAA), frost free days are days with temperatures greater than 28 degrees Fahrenheit.

2. *Impact of microclimates on water management within the service area*

The impact of microclimates on water management generally results in a reduced need for application of crop protecting frost water. Warm inversion layers from foothill air drainage coupled with wind machine operation enhances the microclimate in the District and is what allows for greater reliability of annual production relative to areas of the valley that experience harmfully low temperatures on a regular basis.

## **E. Natural and Cultural Resources**

1. *Natural resource areas within the service area*

<i>Name</i>	<i>Estimated Acres</i>	<i>Description</i>
None		

2. *Description of district management of these resources in the past or present*

The service area of the District is generally void of natural resources that would require management to protect; its farmland.

3. *Recreational and/or cultural resources areas within the service area*

<i>Name</i>	<i>Estimated Acres</i>	<i>Description</i>
None		

## **F. Operating Rules and Regulations**

1. *Operating rules and regulations*

See Attachment B, District Rules and Regulations

2. *Water allocation policy*

See Attachment B, **Page 3**

Summary –

**4. ENTITLEMENT TO WATER**

a. *When the demand for water is greater than the available supply, available water will be distributed equitably among those who have filed an application in accordance with Paragraph 1 and as required by California State Water Code Section 22250, which reads in part as follows:*

*“All water distributed by districts for irrigation purposes shall be apportioned ratable to each landowner upon the basis or ratio which the last assessment against his land for district purposes bears to the whole sum assessed in the district.”*

*\* b. Any landowner may assign for use within the District their full allocation pursuant to Section 22250 provided the water is first Secured in accordance with Paragraph 1 and the Transfer Fee Rule.*

3. *Official and actual lead times necessary for water orders and shut-off (Agricultural only)*

See Attachment B, **Page 4**

Summary –

*24 hours advance notice for turn on and shut off*

4. *Policies regarding return flows (surface and subsurface drainage from farms) and outflow (Agricultural only)*

See Attachment B, **Page 5**

Summary –

**TAILWATER**

a. *The District is required to regulate excessive tail-water. The District's Repayment Contract with the United States requires the District, as a provision of its conservation plan and as a condition of continued service, to ensure water is put to beneficial use. Hence, the District must regulate excessive tail-water to avoid determinations that it is wastefully or unreasonably using the federal resource*

(water supply). If the District is required to regulate tail-water because the grower does not do so, it needlessly expends District funds without providing specific benefit to the broad group of District landowners.

b. If the District determines that a landowner has improperly used irrigation water delivered to them, or improperly prepared the ground to receive irrigation water, such that excess tail-water, in the District's opinion, is leaving the landowner's property, the District shall notify the landowner with the appropriate steps to take to ensure that excess tail water is eliminated. If the landowner does not take appropriate steps to remedy the situation, the District will reduce and/or discontinue water delivery until the problem is rectified. Alternatively, the District may, at the landowner's expense, take corrective action in order to ensure that excess tail-water does not leave the landowner's property. Landowners will be charged the full cost to the District of any services provided to restrict tail-water runoff, and payment of these charges will be required as a condition of continued service.

5. *Policies on water transfers by the district and its customers*

See Attachment B, **Page 4**

Summary –

**WATER TRANSFERS**

a. *Intra-district - between **same entity**:*

A landowner having properties in two or more of the District's delivery systems (e.g. OCID System 7 and OCID System 11), may transfer water, without penalty or transfer fee, from one system to another system. The Energy Charge will apply only if water is delivered on a pump-pressurized delivery.

b. *Intra-district - between **different entities**:*

A landowner may transfer water to another landowner by filing a signed water transfer form with the District and paying fees in accordance with the Transfer Fee Rule. The transferor, prior to the transfer in accordance with Paragraph 1, must have purchased the transferred water. The District assumes no responsibility for collecting monies due to the transferor from the transferee. Both the transferor and the transferee must sign a water transfer form. The Energy Charge will apply to the transferee only if water is delivered on a pumped delivery.

*Transfers out of District are not permitted under any circumstances. Transfers in from other supplies, are permitted and shall require payment of a \$50 per acre-foot wheeling fee prior to delivery.*

## **G. Water Measurement, Pricing, and Billing**

### **1. Agricultural Customers**

Refer to BMP A.1. Information on water measurement for agricultural contractors is completed under BMP A.1 on page 4-15.

### **2. Urban Customers -None**

### 3. Agricultural Rates

- a. Current year agricultural and /or urban water charges - including rate structures and billing frequency

See Attachment D for current year (2017) rates

- b. Annual charges collected from District landowners (2015 Net Standby)

<i>Fixed Charges</i>			
<i>Charges (\$ by unit)</i>	<i>Charge units \$/acre, etc.</i>	<i>Units billed during year acres, etc.</i>	<i>Total \$ collected (\$ times units)</i>
\$72.5	\$72.50/acre	27,962	\$2,027,245

Please refer to the guidebook for information when completing the table.

<i>Volumetric charges</i>			
<i>Charges (\$ by unit)</i>	<i>Charge units \$/AF, etc.</i>	<i>Units billed during year AF, etc.</i>	<i>Total \$ collected (\$ times units)</i>
\$500	\$500/af	1,529	\$764,500
\$800	\$800/af	5,654	\$4,523,200
\$1,050	\$1,050/af	280	\$294,000
\$1,400	\$1,400/af	2,000	\$2,800,000

Please refer to the guidebook for information when completing the table.

#### *Annual charges collected from urban customers*

<i>Fixed Charges</i>			
<i>Charges (\$ by unit)</i>	<i>Charge units (\$/meter size)</i>	<i>Units billed during year (by meter size) etc.</i>	<i>Total \$ collected (\$ times units)</i>

Please refer to the guidebook for information when completing the table.

<i>Volumetric charges</i>			
<i>Charges (\$ by unit)</i>	<i>Charge units (\$/HCF), etc.</i>	<i>Units billed during year HCF, Kgal, etc.</i>	<i>Total \$ collected (\$ times units)</i>

Please refer to the guidebook for information when completing the table.

See Attachment C Page for District Sample Bills

- c. Describe the contractor's record management system

The District keeps various records or documents for a minimum period of 4 years up to perpetually, depending on the life usefulness of the document. For example, accounts payable and receivable are kept for at least four years, whereas Contract and Legal documents are kept forever. Documents are kept in hard copy form in a fireproof safe as well as electronically on the Districts server.

## H. Water Shortage Allocation Policies

1. *Current year water shortage policies or shortage response plan - specifying how reduced water supplies are allocated*

When the demand for water is greater than the available supply, available water will be distributed equitably among those who have filed an application in accordance with Paragraph 1 and as required by California State Water Code Section 22250, which reads in part as follows:

*“All water distributed by districts for irrigation purposes shall be apportioned ratable to each landowner upon the basis or ratio which the last assessment against his land for district purposes bears to the whole sum assessed in the district.”*

2. *Current year policies that address wasteful use of water and enforcement methods*

*Water illegally used shall be billed at \$500 per acre-foot, or 150% of the current water open-market rate, **whichever is greater**. For example, if the water market rate (as determined by the Board of Directors) is \$1,000 per acre-foot, illegally used water shall be purchased at \$1,500 per acre-foot. If the District is unable to determine how much water was illegally used through the meter, the District will estimate the amount through water orders, previous years' water usage history, or field (i.e., consumptive use) estimates and charge the landowner accordingly.*

*Diverting water from the District in violation of these Rules and Regulations is a violation of law. Any landowner using District water prior to purchasing it from the District may be prosecuted for theft and will be liable for the administrative fees and water payments described above in Paragraph 1.e. In addition to administrative fees and penalties, the District will remove its delivery infrastructure (piping, valves, meter) from landowners illegally diverting District water. Landowners found to be illegally diverting water will be assessed a fine of \$10,000. In addition to the \$10,000 fine they will be billed for the District's time spent removing District delivery infrastructure.*

## I. Evaluation of Regulatory Agency Policies Inhibiting Water Management

*The California legislature passed the Groundwater Sustainability Act in 2014. This legislation is a game changer for agriculture. The Friant Division was designed and predicated on sustainability. The District's surface and ground water use since 1949 has demonstrated sustainable use of groundwater. Notwithstanding this history of demonstrable sustainability, pressure may result on farming in the District such that water above and beyond what has historically been diverted, may be required to ensure sustainability under definitions of the state.*

*To this end, the District is developing policy to encourage maximizing available surface water use. Generally, recently adopted District policy changes include*

*noting to the landowners that fees on groundwater use may be coming in the near future (to minimize those fees, one needs to maximize available surface water diversion). In addition to the imposition of fees, the District is attempting policy development in order to incentivize surface water use, such as pricing comparable to or less than the cost to extract surface water and take or pay policy for water ordered each year.*

## **Section II: Inventory of Water Resources**

### **A. Surface Water Supply**

1. *Surface water supplies in acre feet, imported and originating within the service area, by month (Table 1).*  
[Water Inventory Tables, Table 1](#)
2. *Amount of water delivered to the district by each of the district sources for the last 10 years*  
[Water Inventory Tables, Table 8.](#)

### **B. Groundwater Supply**

1. *Groundwater extracted by the district and delivered, by month*  
[None](#)

2. *Groundwater basin(s) that underlies the service area*

<i>Name</i>	<i>Size (Square Miles)</i>	<i>Usable Capacity (AF)</i>	<i>Safe Yield (AF/Y)</i>
Easterly fringe of Kings Basin	14	Unknown	27,800

3. *Map of district-operated wells and managed groundwater recharge areas*  
[None](#)
4. *Description of conjunctive use of surface and groundwater*  
[None](#)
5. *Groundwater Management Plan*  
[Groundwater Monitoring and Drought Preparedness Program \(AB 303 Adopted June 2006\) See Attachment E](#)
6. *Groundwater Banking Plan*  
[None within District. Arrangements for banking are made with surrounding Friant Division Contractors.](#)

### **C. Other Water Supplies**

1. *“Other” water used as part of the water supply – Describe supply*  
[In 2015 there was a zero allocation by Reclamation. The District was able to utilize a very limited supply from Millerton, rescheduled from previous years. In addition to](#)

that, the District entered into the open market for local supply purchases, and transfers from other contractors. At great cost to growers, a very limited amount of surface water was secured.

For the first time ever, in 2014 (another year of zero allocation), the District permitted landowners to pump groundwater from their parcels, into the District infrastructure to enhance operational flexibility and create a market for purchase of water through exchanges, by those that have no surface water whatsoever and otherwise would have endured bankruptcy.

Notwithstanding the efforts, many orchards were removed, fallowing occurred and the growers experienced economic hardship.

## D. Source Water Quality Monitoring Practices

### 1. Potable Water Quality (Urban only)

None, Potable water is not delivered by OCID

### 2. Agricultural water quality concerns: Yes \_\_\_\_\_ No X

### 3. Description of the agricultural water quality testing program and the role of each participant, including the district, in the program.

Friant Water Authority conducts water quality analyses of the Friant-Kern Canal on annual bases and the findings are shared with OCID and its growers.

### 4. Recent water quality monitoring programs for Friant-Kern Canal surface water

ENVIRONMENTAL AGRICULTURAL Analytical Chemistry									
July 20, 2016					VI 1642614-1-3 Coliform Bacteria Analysis				
Orange Cove Irrigation District					Customer ID : 4018865				
1130 Park Blvd.					System Number : N/A				
Orange Cove, CA 93646					Project Name : FKC				
Analytical Results									
ID	Sample Description	Total	Fecal	E. Coli	Units	Method	Prep	Footnote	
1	FKC M.P. 39.82	1553.1	---	9.5	MPN/100ml	SM 9223B	QTray 2000 18		
2	FKC M.P. 44.56	1303.3	---	14.6	MPN/100ml	SM 9223B	QTray 2000 18		
3	FKC M.P. 48.58	1986.3	---	13.1	MPN/100ml	SM 9223B	QTray 2000 18		
N/R Not Required MPN Most Probable Number A/P Absence/Presence									
The sample(s) listed above are Ag Water									
Sample Handling Information									
ID	Sample Number	System Number	Sample Type/Reason	Sampler	Employed By	Sampled			
1	VI 1642614-001	N/A	Source-Other	John Sanders	Not Available	2016-07-11 10:35			
2	VI 1642614-002	N/A	Source-Other	John Sanders	Not Available	2016-07-11 10:53			
3	VI 1642614-003	N/A	Source-Other	John Sanders	Not Available	2016-07-11 11:05			
Field Analysis/QA Information									
ID	Sample Description	CI Total/Free mg/l	Temp	Analysis Started	Analysis Completed	Contact	Contacted		
1	FKC M.P. 39.82	---	---	2016-07-11 14:08 MBC	2016-07-12 09:33 MBC	N/R			
2	FKC M.P. 44.56	---	---	2016-07-11 14:08 MBC	2016-07-12 09:33 MBC	N/R			
3	FKC M.P. 48.58	---	---	2016-07-11 14:08 MBC	2016-07-12 09:33 MBC	N/R			
Analyses were performed at the FGI, Visalia Laboratory using Standard Methods 20th edition. If you have any questions regarding your results, please call.									
Prepared By: GMA									
<div> <div> Reviewed and Approved By: <b>Raquel R. Harvey</b> </div> <div> Digitally signed by Raquel R. Harvey  dn: cn=Raquel R. Harvey, o=FGI, ou=Visalia Laboratory, email=raquel.harvey@fgi.com </div> </div> <div> <div> <b>Page 1 of 1</b> </div> <div> <b>Corporate Offices &amp; Laboratory</b>  801 Corporation Street  Santa Paula, CA 93060  TEL: (805)362-2000  Env FAX: (805)225-4172 / Ag FAX: (805)362-2063  CA ELAP Certification No. 1573 </div> <div> <b>Office &amp; Laboratory</b>  2000 Daguerre Blvd.  Stockton, CA 95215  TEL: (209)842-0182  FAX: (209)842-0423  CA ELAP Certification No. 1563 </div> <div> <b>Office &amp; Laboratory</b>  500 E. Lind Avenue  Chico, CA 95926  TEL: (530)343-5818  FAX: (530)343-3807  CA ELAP Certification No. 2670 </div> <div> <b>Office &amp; Laboratory</b>  3442 Empress Drive, Suite D  San Luis Obispo, CA 93401  TEL: (805)783-2840  FAX: (805)783-2912  CA ELAP Certification No. 2775 </div> <div> <b>Office &amp; Laboratory</b>  8415 W. Gordon Avenue  Visalia, CA 93291  TEL: (559)734-8473  FAX: (559)734-8433  CA ELAP Certification No. 2810 </div> </div>									



## Report of Water Analysis

1910 W. McGinley, Suite 110, Fresno, CA 93728  
FAX (559) 268-8174 - (800) 229-8896 - (559) 233-6129

Friant Water Authority  
854 N Harvard Ave  
Lindsay CA 93247-1715  
10616  
50

Lab No. 229869  
Sampler J.Verhoeven  
Submitted Date 10/14/2015  
Submitted by  
Reported Date 10/23/2015  
Location/Project  
Copy To  
Fax (559) 562-3496  
e-mail sstools@friantwater.org

Ag Suitability Crop:

	Date	Time	EC	Ca	Mg	Na	SAR	Adj SAR	Cl	CO <sub>3</sub> +HCO <sub>3</sub>	SO <sub>4</sub>	B	NO <sub>3</sub> -N	Fe	Mn	pH	L.I.	TDS
RL→	Sampled	Sampled	dS/m	meq/L	meq/L	meq/L			meq/L	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	unit	Calc	mg/L
SM→			2510 B	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.10	0.02	1.0 to 14.0	-2.0 to 2.0	10.0
EPA→				200.7	200.7	200.7	Calc	Calc	300.0	2320 B		300.0	200.7	300.0	200.7	4500H B	2330 B	2540 C
Analysis Date:	10/20/2015	10/23/2015	10/22/2015	10/22/2015	10/22/2015	10/22/2015	10/23/2015	10/23/2015	10/23/2015	10/20/2015	10/15/2015	10/22/2015	10/15/2015	10/22/2015	10/22/2015	10/20/2015	10/23/2015	10/23/2015
Analysis Time:	8:46	12:38	12:36	12:38	12:36	12:36	21:26	8:46	21:26	12:36	12:36	12:36	12:36	12:36	8:46			14:55
001 MP 34.92	10/13/15	10:20	0.05	0.19	0.05	0.2	0.5	<0.1	<0.1	0.3	<0.1	<0.05	<0.1	<0.10	<0.02	6.5	-2.9	43
002 MP 62.02	10/13/15	11:20	0.05	0.21	0.06	0.2	0.4	<0.1	<0.1	0.3	<0.1	<0.05	<0.1	<0.10	<0.02	6.9	-2.4	43
003 MP 71.37	10/13/15	12:50	0.06	0.31	0.08	0.2	0.4	0.1	<0.1	0.5	<0.1	<0.05	<0.1	<0.10	<0.02	7.1	-1.9	44
004 MP 95.76	10/13/15	13:45	0.12	0.40	0.20	0.3	0.6	0.3	0.2	0.6	0.1	<0.05	0.8	<0.10	<0.02	7.6	-1.2	74
005 MP 122.05	10/14/15	8:15	0.14	0.55	0.14	0.5	0.8	0.7	0.2	0.8	0.2	<0.05	0.4	<0.10	<0.02	7.9	-0.7	83
006 MP 151.80	10/14/15	9:40	0.29	1.17	0.12	1.0	1.3	1.6	0.6	1.1	0.7	<0.05	1.7	<0.10	<0.02	8.6	0.4	183

### Non-Regulatory for State Drinking Water Requirements

RL = Reporting Limit

pH analyzed outside of 15 min hold time.

SM = Standard Methods for the Examination of Water and Wastewater, 19th ed., 1995

EPA = Environmental Protection Agency methods

QA/QC available upon request.

Approved By:

*Scott McFarland*

ELAP Certification #1595

Page 1 of 2

## E. Water Uses within the District

### 1. Agricultural

*See Chapter 5, Water Inventory Tables, Table 5 - Crop Water Needs*

### 2. Types of irrigation systems used for each crop in current year

Crop name	Total Acres	Level Basin - acres	Furrow - acres	Sprinkler - acres	Low Volume - acres
Citrus	20,600	43	2,231	1,575	17,156
Deciduous Fruits/Nuts	2,324		597	168	1,559
Olives	751	1	152	175	423
Forage	589	194	166	194	35
Other/Fallow	<u>2,739</u>	<u>10</u>	<u>200</u>	<u>100</u>	<u>17156</u>
TOTAL	27,962	2,348	3,396	2,462	21,856

3. *Urban use by customer type in current year*

None

4. *Urban Wastewater Collection/Treatment Systems serving the service area*

None

5. *Groundwater recharge in current year (Table 6)*

None

6a. *Transfers and exchanges **into** the service area in current year – (Table 1)*

<i>From Whom</i>	<i>To Whom</i>	<i>AF</i>	<i>Use</i>
Fresno ID	OCID	1,705	Ag
Arvin Edison WSD	OCID	1,860	Ag
Westlands Water District	OCID	1,819	Ag
Central California ID	OCID	2,133	Ag
Tri-Valley Water District	OCID	9	Ag
Kern Tulare ID	OCID	21	Ag
Kaweah Delta WCD	OCID	81	Ag
Total		7,628	Ag

6b. *Transfers and exchanges **out** of the service area in current year – (Table 6)*

<i>From Whom</i>	<i>To Whom</i>	<i>AF</i>	<i>Use</i>
None			
Total			

Not applicable

7. *Wheeling, or other transactions in and out of the district boundaries – (Table 6)*

<i>From Whom</i>	<i>To Whom</i>	<i>AF</i>	<i>Use</i>
None			
Total			

Not applicable

8. *Other uses of water*

<i>Other Uses</i>	<i>AF</i>
None	

Not applicable

## F. Outflow from the District (Agricultural only)

See Facilities Map, Attachment A, for the location of surface and subsurface outflow points, outflow measurement points, outflow water-quality testing locations

1. *Surface and subsurface drain/outflow*

<i>Outflow point</i>	<i>Location description</i>	<i>AF</i>	<i>Type of measurement</i>	<i>Accuracy (%)</i>	<i>% of total outflow</i>	<i>Acres drained</i>
	None					

Not applicable

<i>Outflow point</i>	<i>Where the outflow goes (drain, river or other location)</i>	<i>Type Reuse (if known)</i>
	None	

Not applicable

2. *Description of the Outflow (surface and subsurface) water quality testing program and the role of each participant in the program*

Not applicable

3. *Outflow (surface drainage & spill) Quality Testing Program*

<i>Analyses Performed</i>	<i>Frequency</i>	<i>Concentration Range</i>	<i>Average</i>	<i>Reuse limitation?</i>
None				

Not applicable

*Outflow (subsurface drainage) Quality Testing Program*

<i>Analyses Performed</i>	<i>Frequency</i>	<i>Concentration Range</i>	<i>Average</i>	<i>Reuse limitation?</i>
None				

Not applicable

4. Provide a brief discussion of the District's involvement in Central Valley Regional Water Quality Control Board programs or requirements for remediating or monitoring any contaminants that would significantly degrade water quality in the receiving surface waters.

**G. Water Accounting (Inventory)**

1. *Water Supplies Quantified*

- Surface water supplies, imported and originating within the service area, by month (Table 1)*
- Ground water extracted by the district, by month (Table 2)*
- Effective precipitation by crop (Table 5)*
- Estimated annual ground water extracted by non-district parties (Table 2)*
- Recycled urban wastewater, by month (Table 3)*
- Other supplies, by month (Table 1)*

2. *Water Used Quantified*

- Agricultural conveyance losses, including seepage, evaporation, and operational spills in canal systems (Table 4) or*

- Urban leaks, breaks and flushing/fire uses in piped systems (Table 4)*
- b. Consumptive use by riparian vegetation or environmental use (Table 6)*
  - c. Applied irrigation water - crop ET, water used for leaching/cultural practices (e.g., frost protection, soil reclamation, etc.) (Table 5)*
  - d. Urban water use (Table 6)*
  - e. Ground water recharge (Table 6)*
  - f. Water exchanges and transfers and out-of-district banking (Table 6)*
  - g. Estimated deep percolation within the service area (Table 6)*
  - h. Flows to perched water table or saline sink (Table 7)*
  - i. Outflow water leaving the district (Table 6)*
  - j. Other*
3. *Overall Water Inventory*
- a. Table 6*

### Section III: Best Management Practices (BMPs) for Agricultural Contractors

#### A. Critical Agricultural BMPs

1. Measure the volume of water delivered by the district to each turnout with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 6%

a. Number of delivery points (turnouts and connections) 1,141

b. Number of delivery points serving more than one farm 0

c. Number of measured delivery points (meters and measurement devices)  
1,141

d. Percentage of water delivered to the contractor that was measured at a delivery point  
100

e. Total number of delivery points not billed by quantity 0

f. Delivery point measurement device table

Measurement Type	Number	Accuracy* (+/- %)	Reading Frequency (Days)	Calibration Frequency (Months)	Maintenance Frequency (Months)
Propeller Meter	1,069	2%	30	As needed	As needed
Digital Meters	72	0.25%	30	As needed	As needed
Total	1,141				

\*Documentation verifying the accuracy of measurement devices must be submitted with Plan and included in Attachment C.

2. Designate a water conservation coordinator to develop and implement the Plan and develop progress reports

Name: [Fergus Morrissey](#)

Title: [Engineer-Manager](#)

Address: [1130 Park Blvd. Orange Cove, Ca 93646](#)

Telephone: [559-626-4461](#)

E-mail: [fmorrissey@orangecoveid.org](mailto:fmorrissey@orangecoveid.org)

Provide the job description and minimum qualifications

**ORANGE COVE IRRIGATION DISTRICT  
JOB DESCRIPTION – GENERAL MANAGER**

**PRIMARY FUNCTION:**

Under the policy direction of and reporting to the Board of Directors, plans, organizes, directs and controls the District's activities in fulfilling the requirements for the administration, operation, maintenance and repair of the District's water distribution system and power plants. Under the policy direction of and reporting to the Board of Directors, plans, organizes, directs and controls the District's activities that primarily strive to protect the water supply, water rights, and FERC licenses of the District.

**TYPICAL DUTIES:**

- a) Establishes overall program priorities for District staff and consultants after receiving policy direction from the Board of Directors;
- b) Serves as principal point of contact regarding issues or actions that could impact the water supply availability and cost to the District;
- c) Ensures that annual budgets are prepared and presented for approval by the Board of Directors;
- d) Ensures that the accounting and expenditures of District funds are performed in accordance with the direction of the Board of Directors and state and federal law;
- e) Serves as Secretary to the Board of Directors;
- f) Prepares and oversees the preparation of reports to the Board of Directors regarding all aspects of the District's programs;
- g) Responsible for ensuring that the District's safety practices and programs are being coordinated, implemented and maintained;
- h) Coordinates the activities of the departments within the District to insure a high level of overall program efficiency;
- i) Effectively communicates and administers the personnel policies and other established policies of the Board of Directors;
- j) Represents the District Board of Directors at meeting or before federal and state agencies, federal and state legislatures, and other organizations;
- k) Administers the provisions of the Orange Cove Irrigation District;
- l) Participates in monthly meetings of the Board of Directors, establishing agendas, and disseminating information;
- m) Manages special projects of the District;
- n) Performs other related assignments as required.

## Minimum Qualifications

*Bachelor of Science in Engineering or other technical degree from an accredited University. Master of Science in Engineering or other technical degree is preferable.*

*Minimum of 5 years experience in the water resources arena, California water resources is preferable.*

*Must excel and have demonstrated knowledge of or experience in:*

- *Hydrology,*
- *Fluid Mechanics,*
- *Physics,*
- *Finance and Accounting,*
- *Computer Programming,*
- *Communication Skills (written and verbal),*
- *Interpersonal and relational skills,*
- *Business Administration,*
- *Analytical Skills and Problem Solving,*
- *Hydroelectric Power Plant Facility Design and Operation,*
- *Plumbing*

3. *Provide or support the availability of water management services to water users*  
*See Attachment F, Notices of District Education Programs and Services Available to Customers.*

### ***a. On-Farm Evaluations***

- 1) On farm irrigation and drainage system evaluations using a mobile lab type assessment

	<i>Total in district</i>	<i># surveyed last year</i>	<i># surveyed in current year</i>	<i># projected for next year</i>	<i># projected 2<sup>nd</sup> yr in future</i>
<i>Irrigated acres</i>					
<i>Number of farms</i>					

- 2) Timely field and crop-specific water delivery information to the water user

### ***b. Real-time and normal irrigation scheduling and crop ET information***

### ***c. Surface, ground, and drainage water quantity and quality data provided to water users***

### ***d. Agricultural water management educational programs and materials for farmers, staff, and the public***

<i>Program</i>	<i>Co-Funders (If Any)</i>	<i>Yearly Targets</i>

--	--	--

See Attachment H for samples of provided materials and notices

***e. Other***

***4. Pricing structure - based at least in part on quantity delivered***

The District has adopted a pricing structure that is based on the quantity of water delivered, and that structure is designed to encourage use of water supply made available. Because irrigation demand is what it is when it comes to permanent crops, failing to irrigate is not an option if bankruptcy is to be avoided.

The District's Contract quantity with the United States is predicated on both the cropping pattern and the crop irrigation requirement as well as hydrologic variability and reliability, Contracted surface water is there to be used. Available surface water not used must come from somewhere and the only other place besides effective precipitation from which it may be derived is groundwater.

Because (and now under the law – Sustainable Groundwater Management Act) it is required that groundwater must be sustainable, one cannot shift use from Contract supply or be discouraged from using Contract supply when it is available by punitive or tiered pricing. That pricing mechanism would be counterproductive to overall water management, as with permanent crops, the interplay between surface and groundwater is a zero sum game.

***5. Evaluate and improve efficiencies of district pumps***

Describe the program to evaluate and improve the efficiencies of the contractor's pumps.

	<i>Total in district</i>	<i># surveyed last year</i>	<i># surveyed in current year</i>	<i># projected for next year</i>
<i>Wells</i>	0			
<i>Lift pumps</i>	50	Continuously Monitored		

**B. Exemptible BMPs for Agricultural Contractors**

*(See Planner, Chapter 2, Addendum B for examples of exemptible conditions)*

***1. Facilitate alternative land use***

<i>Drainage Characteristic</i>	<i>Acreage</i>	<i>Potential Alternate Uses</i>
<i>High water table (&lt;5 feet)</i>		
<i>Poor drainage</i>		
<i>Groundwater Selenium concentration &gt; 50 ppb</i>		
<i>Poor productivity</i>		

Not applicable

Describe how the contractor encourages customers to participate in these programs.

2. *Facilitate use of available recycled urban wastewater*

<i>Sources of Recycled Urban Waste Water</i>	<i>AF/Y Available</i>	<i>AF/Y Currently Used in District</i>

Not applicable at this time...District is in discussion with the City of Orange Cove to take delivery of their treated wastewater upon development of a treatment plant with suitable capabilities.

3. *Facilitate the financing of capital improvements for on-farm irrigation systems*

<i>Program</i>	<i>Description</i>
None	

4. *Incentive pricing*

Describe incentive rate structure or other programs and purpose.

In 2015 there was no incentive rate structure in place.

5. a) *Line or pipe ditches and canals*

<i>Canal/Lateral (Reach)</i>	<i>Type of Improvement</i>	<i>Number of Miles in Reach</i>	<i>Estimated Seepage (AF/Y)</i>	<i>Accomplished/Planned Date</i>
------------------------------	----------------------------	---------------------------------	---------------------------------	----------------------------------

Not applicable

b) *Construct/line regulatory reservoirs*

<i>Reservoir Name</i>	<i>Location</i>	<i>Describe improved operational flexibility and AF savings</i>
-----------------------	-----------------	---

Not applicable

6. *Increase flexibility in water ordering by, and delivery to, water users*

See Attachment I, contractor 'agricultural water order' form

7. *Construct and operate district spill and tailwater recovery systems*

<i>Distribution System Lateral</i>	<i>Annual Spill (AF/Y)</i>	<i>Quantity Recovered and reused (AF/Y)</i>
------------------------------------	----------------------------	---

Not applicable

<i>Drainage System Lateral</i>	<i>Annual Drainage Outflow (AF/Y)</i>	<i>Quantity Recovered and reused (AF/Y)</i>
--------------------------------	---------------------------------------	---

Not applicable

Describe facilities that resulted in reduced spill and tailwater

Not applicable

8. *Plan to measure outflow.*

Total # of outflow (surface) locations/points 0

Total # of outflow (subsurface) locations/points 0

Total # of measured outflow points 0

Percentage of total outflow (volume) measured during report year 0

*Identify locations, prioritize, determine best measurement method/cost, submit funding proposal*

<i>Location &amp; Priority</i>	<i>Estimated cost (in \$1,000s)</i>				
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>

Not applicable

9. *Optimize conjunctive use of surface and groundwater*

Describe the potential for increasing conjunctive use of surface and groundwater.

Local geology is not conducive to conjunctive use. The best that can be done, is over irrigation.

10. *Automate distribution and/or drainage system structures*

Identify locations where automation would increase delivery flexibility and reduce spill and losses. Describe program to achieve these benefits and estimate the annual water savings.

The District's delivery system is a state of the art, fully SCADA enabled and computer/telemetry controlled automated on demand system.

11. *Facilitate or promote water customer pump testing and evaluation*

See Attachment F, Notices of District Education Programs and Services Available to Customers

12. *Mapping*

<i>GIS maps</i>	<i>Estimated cost (in \$1,000s)</i>				
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 5</i>	<i>Year 6</i>
<i>Layer 1 – Distribution system</i>					
<i>Layer 2 – Drainage system</i>					
<i>Suggested layers:</i>					
<i>Layer 3 – Groundwater information</i>					
<i>Layer 4 – Soils map</i>					
<i>Layer 5 – Natural &amp; cultural resources</i>					
<i>Layer 6 – Problem areas</i>					

## C. Provide a 5-Year Budget for Implementing BMPs

1. *Amount actually spent during current year.*

Year <u>2015</u> or <u>Year 1</u>		<i>Actual Expenditure</i>	
<i>BMP #</i>	<i>BMP Name</i>	<i>(not including staff time)</i>	<i>Staff Hours</i>
A 1	Measurement	\$20,000	400
2	Conservation staff	\$0	0
3	On-farm evaluation /water delivery info	\$0	0
	Irrigation Scheduling	\$0	0
	Water quality	\$500	20
	Agricultural Education Program	\$0	0
4	Quantity pricing	\$0	0
5	Contractor's pumps	\$30,000	100

<i>B</i>	<i>1</i>	<i>Alternative land use</i>	<i>\$0</i>	<i>0</i>
	<i>2</i>	<i>Urban recycled water use</i>	<i>\$0</i>	<i>0</i>
	<i>3</i>	<i>Financing of on-farm improvements</i>	<i>\$0</i>	<i>0</i>
	<i>4</i>	<i>Incentive pricing</i>	<i>\$0</i>	<i>0</i>
	<i>5</i>	<i>Line or pipe canals/install reservoirs</i>	<i>\$0</i>	<i>0</i>
	<i>6</i>	<i>Increase delivery flexibility</i>	<i>\$0</i>	<i>0</i>
	<i>7</i>	<i>District spill/tailwater recovery systems</i>	<i>\$0</i>	<i>0</i>
	<i>8</i>	<i>Measure outflow</i>	<i>\$0</i>	<i>0</i>
	<i>9</i>	<i>Optimize conjunctive use</i>	<i>\$0</i>	<i>0</i>
	<i>10</i>	<i>Automate canal structures</i>	<i>\$0</i>	<i>0</i>
	<i>11</i>	<i>Customer pump testing</i>	<i>\$0</i>	<i>0</i>
	<i>12</i>	<i>Mapping</i>	<i>\$0</i>	<i>0</i>
		<i>Total</i>	<i>\$50,500</i>	<i>520</i>

2. *Projected budget summary for the next year.*

<i>Year 2016 or Year 2</i>		<i>Budgeted Expenditure</i>	
<i>BMP #</i>	<i>BMP Name</i>	<i>(not including staff time)</i>	<i>Staff Hours</i>
<i>A</i>	<i>1 Measurement</i>	<i>\$20,000</i>	<i>400</i>
	<i>2 Conservation staff</i>	<i>\$0</i>	<i>0</i>
	<i>3 On-farm evaluation /water delivery info</i>	<i>\$0</i>	<i>0</i>
	<i>Irrigation Scheduling</i>	<i>\$0</i>	<i>0</i>
	<i>Water quality</i>	<i>\$500</i>	<i>20</i>
	<i>Agricultural Education Program</i>	<i>\$0</i>	<i>0</i>
	<i>4 Quantity pricing</i>	<i>\$0</i>	<i>0</i>
	<i>5 Contractor's pumps</i>	<i>\$30,000</i>	<i>100</i>
<i>B</i>	<i>1 Alternative land use</i>	<i>\$0</i>	<i>0</i>
	<i>2 Urban recycled water use</i>	<i>\$0</i>	<i>0</i>
	<i>3 Financing of on-farm improvements</i>	<i>\$0</i>	<i>0</i>
	<i>4 Incentive pricing</i>	<i>\$0</i>	<i>0</i>
	<i>5 Line or pipe canals/install reservoirs</i>	<i>\$0</i>	<i>0</i>
	<i>6 Increase delivery flexibility</i>	<i>\$0</i>	<i>0</i>
	<i>7 District spill/tailwater recovery systems</i>	<i>\$0</i>	<i>0</i>
	<i>8 Measure outflow</i>	<i>\$0</i>	<i>0</i>
	<i>9 Optimize conjunctive use</i>	<i>\$0</i>	<i>0</i>
	<i>10 Automate canal structures</i>	<i>\$0</i>	<i>0</i>
	<i>11 Customer pump testing</i>	<i>\$0</i>	<i>0</i>
	<i>12 Mapping</i>	<i>\$0</i>	<i>0</i>
	<i>Total</i>	<i>\$50,500</i>	<i>520</i>

3. *Projected budget summary for 3<sup>rd</sup> year.*

<i>Year 2017 or Year 3</i>		<i>Budgeted Expenditure</i>	
<i>BMP #</i>	<i>BMP Name</i>	<i>(not including staff time)</i>	<i>Staff Hours</i>
<i>A</i>	<i>1 Measurement</i>	<i>\$20,000</i>	<i>400</i>
	<i>2 Conservation staff</i>	<i>\$0</i>	<i>0</i>
	<i>3 On-farm evaluation /water delivery info</i>	<i>\$0</i>	<i>0</i>
	<i>Irrigation Scheduling</i>	<i>\$0</i>	<i>0</i>

	Water quality	\$500	20
	Agricultural Education Program	\$0	0
4	Quantity pricing	\$0	0
5	Contractor's pumps	\$30,000	100
B	1 Alternative land use	\$0	0
	2 Urban recycled water use	\$0	0
	3 Financing of on-farm improvements	\$0	0
	4 Incentive pricing	\$0	0
	5 Line or pipe canals/install reservoirs	\$0	0
	6 Increase delivery flexibility	\$0	0
	7 District spill/tailwater recovery systems	\$0	0
	8 Measure outflow	\$0	0
	9 Optimize conjunctive use	\$0	0
	10 Automate canal structures	\$0	0
	11 Customer pump testing	\$0	0
	12 Mapping	\$0	0
	<b>Total</b>	<b>\$50,500</b>	<b>520</b>

4. Projected budget summary for 4<sup>th</sup> year.

Year <u>2018</u> or Year <u>4</u>		Budgeted Expenditure	
BMP #	BMP Name	(not including staff time)	Staff Hours
A	1 Measurement	\$20,000	400
	2 Conservation staff	\$0	0
	3 On-farm evaluation /water delivery info	\$0	0
	Irrigation Scheduling	\$0	0
	Water quality	\$500	20
	Agricultural Education Program	\$0	0
4	Quantity pricing	\$0	0
5	Contractor's pumps	\$30,000	100
B	1 Alternative land use	\$0	0
	2 Urban recycled water use	\$30,000	100
	3 Financing of on-farm improvements	\$0	0
	4 Incentive pricing	\$0	0
	5 Line or pipe canals/install reservoirs	\$0	0
	6 Increase delivery flexibility	\$0	0
	7 District spill/tailwater recovery systems	\$0	0
	8 Measure outflow	\$0	0
	9 Optimize conjunctive use	\$0	0
	10 Automate canal structures	\$0	0
	11 Customer pump testing	\$0	0
	12 Mapping	\$0	0
	<b>Total</b>	<b>\$80,500</b>	<b>620</b>

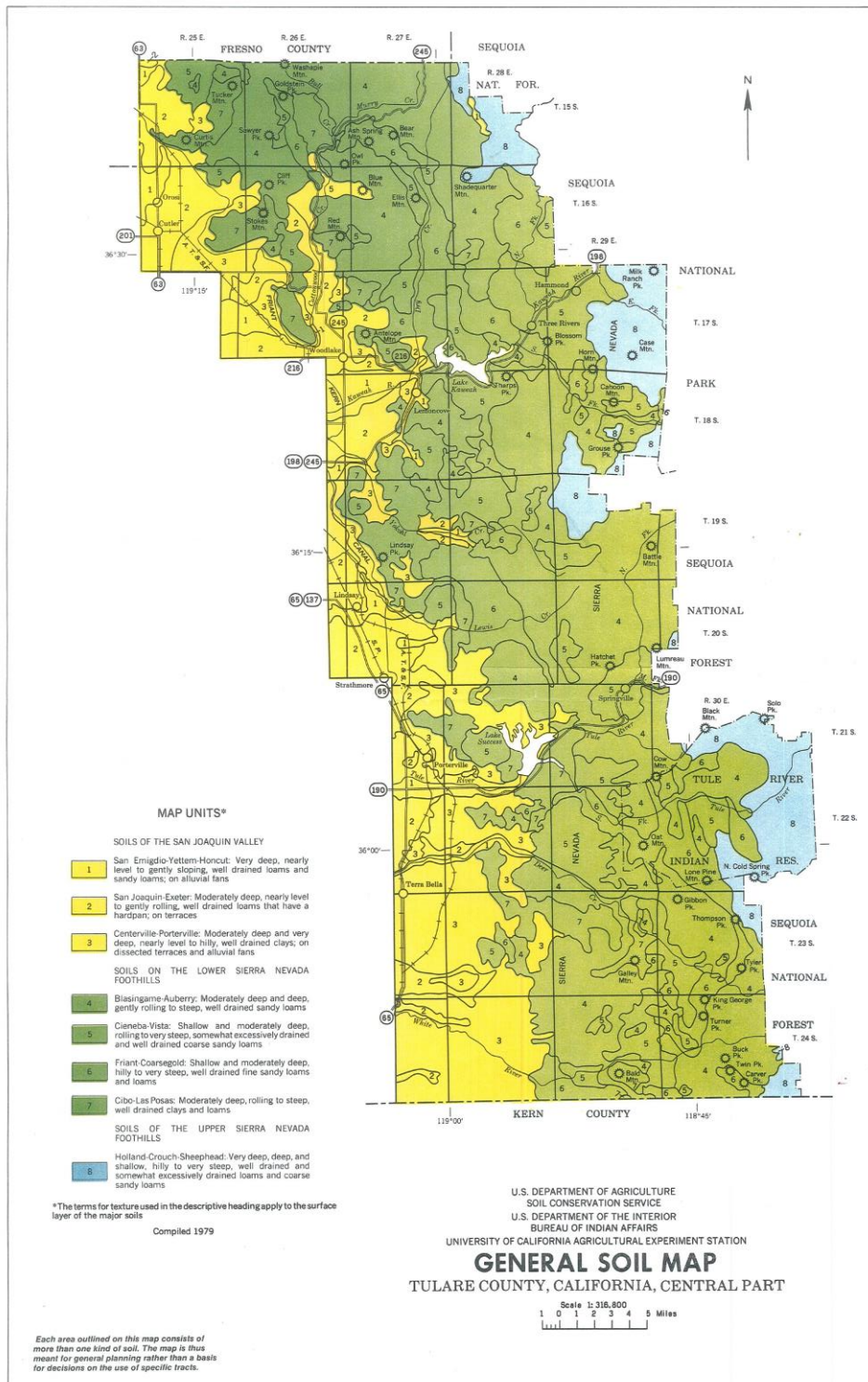
5. Projected budget summary for 5<sup>th</sup> year.

Year <u>2019</u> or Year <u>5</u>		Budgeted Expenditure	
BMP #	BMP Name	(not including staff time)	Staff Hours

<i>A</i>	<i>1 Measurement</i>	<i>\$20,000</i>	<i>400</i>
	<i>2 Conservation staff</i>	<i>\$0</i>	<i>0</i>
	<i>3 On-farm evaluation /water delivery info</i>	<i>\$0</i>	<i>0</i>
	<i>Irrigation Scheduling</i>	<i>\$0</i>	<i>0</i>
	<i>Water quality</i>	<i>\$500</i>	<i>20</i>
	<i>Agricultural Education Program</i>	<i>\$0</i>	<i>0</i>
<i>4</i>	<i>Quantity pricing</i>	<i>\$0</i>	<i>0</i>
<i>5</i>	<i>Contractor's pumps</i>	<i>\$30,000</i>	<i>100</i>
<i>B</i>	<i>1 Alternative land use</i>	<i>\$0</i>	<i>0</i>
	<i>2 Urban recycled water use</i>	<i>\$30,000</i>	<i>100</i>
	<i>3 Financing of on-farm improvements</i>	<i>\$0</i>	<i>0</i>
	<i>4 Incentive pricing</i>	<i>\$0</i>	<i>0</i>
	<i>5 Line or pipe canals/install reservoirs</i>	<i>\$0</i>	<i>0</i>
	<i>6 Increase delivery flexibility</i>	<i>\$0</i>	<i>0</i>
	<i>7 District spill/tailwater recovery systems</i>	<i>\$0</i>	<i>0</i>
	<i>8 Measure outflow</i>	<i>\$0</i>	<i>0</i>
	<i>9 Optimize conjunctive use</i>	<i>\$0</i>	<i>0</i>
	<i>10 Automate canal structures</i>	<i>\$0</i>	<i>0</i>
	<i>11 Customer pump testing</i>	<i>\$0</i>	<i>0</i>
	<i>12 Mapping</i>	<i>\$0</i>	<i>0</i>
<i>Total</i>		<i>\$80,500</i>	<i>620</i>

**Location Map For:**  
Hills Valley Irrigation District  
Orange Cove Irrigation District  
Tri-Valley Water District





**ATTACHMENT B**  
**DISTRICT RULES AND REGULATIONS (2015)**

**RULES AND REGULATIONS FOR WATER DELIVERIES**  
**2015 CONTRACT-YEAR**

**1. APPLICATION FOR WATER**

a. Water applications will be accepted at the District office until 4:00 P.M., February 28, 2015, and must include the quantity in acre-feet of District water the landowner wishes to reserve for the upcoming Contract-Year (March 1, 2015 – February 29, 2016). **Please Note: Having a credit balance on an individual water account does not relieve the need to submit a water application; it only changes the payment due. CONTRACT WATER MAY NOT BE CARRIED OVER IN INDIVIDUAL'S ACCOUNT(S) FROM ONE YEAR TO THE NEXT – AN APPLICATION IS REQUIRED EVERY YEAR TO SECURE CONTRACT WATER MADE AVAILABLE TO THE ORANGE COVE IRRIGATION DISTRICT BY THE BUREAU OF RECLAMATION UNDER THE DISTRICT'S REPAYMENT CONTRACT.**

The minimum payment due at this time (when added to your credit balance) must cover one-half the cost of the water reserved. The second installment will be due June 20, 2015. Applications received and/or postmarked on or before February 28<sup>th</sup> will be accepted. Applications received or postmarked after February 28<sup>th</sup> will be subject to availability and a \$20.00 per acre-foot administrative charge. No water will be delivered before it is purchased.

b. Water will not be delivered to any customer until all outstanding customer charges, including but not limited to Standby Charges, have been paid District-wide.

c. **Unpaid or delinquent water charges and unauthorized operation or tampering with water delivery meters will trigger the District to lock subject water delivery meters.** Unpaid water or Standby charges will become a lien against the landowner's property. Interest charges will accrue on all delinquent accounts at the legal rate permitted by law. A \$200 administrative fee will be assessed to the applicant to UNLOCK any delivery that has been locked due to delinquency, unauthorized operation or meter tampering. Cutting chains or locks will result in an additional \$200 administrative fee (\$400 total).

All water illegally used shall be billed at \$500 per acre-foot, or 150% of the current water market rate, whichever is greater. For example, if water supply conditions result in a water market rate of \$1,000 per acre foot, illegally used water shall be purchased at \$1,500 per acre foot. If the District is unable to determine how much water was illegally used through the meter, the District will estimate the amount through water orders, previous years' water usage history, or field (i.e., consumptive use) estimates and charge the landowner accordingly.

d. Water applications filed with the District by persons other than the property owner (lessees, renters, etc.) shall be countersigned by the property owner authorizing the applicant to use water and assuming responsibility for any unpaid water bills.

e. To ensure maximum supply is available to you under this dry year hydrology the District is requiring reserving at least 0.12 acre feet per acre. Note the typical full reservation requirement of 1.4 acre feet per acre is not required this year.

If available, additional water may be purchased during the water-year; a \$20 per acre-foot administrative charge will be imposed on customer orders whose initial application reserved less than 0.12 acre-feet per acre while those applications reserving at least 0.12 acre-feet per acre will not be subject to this charge.

The process by which additional water is made available to an applicant depends on the applicant's initial order – here's how it works. If the initial Bureau Class 1 allocation provides insufficient supply for the District to satisfy all orders made of at least 0.12 acre-feet per acre, additional water that becomes available during the year will first be allocated to fulfill orders of 0.12 acre-feet per acre. Put another way, orders less than 0.12 acre-feet per acre will not be eligible to receive additional water as it becomes available from an increase in the Bureau's water supply declaration **until** all orders made of at least 0.12 acre-feet per acre have been satisfied. Thereafter, any additional water will be allocated to those ordering more than 0.12 acre-feet per acre. Only upon fulfillment of all those orders (0.12 acre feet or more per acre) will customers who ordered less than 0.12 acre feet per acre be eligible to receive additional water. Finally, any additional supply available after the foregoing orders have been fulfilled will be made available to applicants whose order is received after February 28<sup>th</sup>.

Note that as additional water becomes available it first satisfies orders of at least 0.12 acre feet per acre. Also, note that additional water does not become available to customers whose applications are received after February 28<sup>th</sup> until all on time orders have been fulfilled.

f. Taking water from the District in violation of these Rules and Regulations is a violation of law. Any landowner using District water prior to purchasing it from the District may be prosecuted for theft, and will be liable for the administrative fees and water payments described in Paragraph 1.c. above.

## **2. CONTRACT-YEAR**

The Contract-Year coincides with the United States Bureau of Reclamation's (Bureau) Contract-Year (March 1<sup>st</sup> to the last day of February of the following year) to ensure that the District does not allocate more water than is "Made Available" by the Bureau (water must first be declared available by the Bureau before it can be delivered to the District). Water delivery may be made any time during the Contract-Year provided water is "Made Available", deliverable (i.e., maintenance activities by the District and or the Friant Water Authority do not preclude its delivery) and the applicable provisions of Paragraph 1 have been satisfied. Water rates are established annually by the Board of Directors and will apply on a Contract-Year basis **unless otherwise modified by the Board of Directors**.

## **3. USE OF WATER**

a. Water delivered by the District must be for an agricultural beneficial use within the District's boundary. Caution: Water used for spraying purposes may ONLY be taken from a District delivery or other District facility provided a County-approved connection is made and maintained at all times between the District facility and the spray equipment. Similarly, any permanent or temporary installed fertigation facility on a landowner's irrigation system must contain backflow prevention features to preclude the release of fertilizer, pesticide or any foreign substance from being introduced back into the Districts delivery system.

b. Water usage statements will not be sent to the water user on a monthly basis (unless requested) but **may** be sent when less than 25% of a water user's purchased supply remains. When the water user's purchased supply is depleted, water delivery will be discontinued. Water delivery may be resumed if the water user acquires additional water by transfer(s) or additional purchases (if additional water is available). It is the water user's responsibility to track their water usage, to not overuse their allotment and to make necessary arrangements with the District for additional water.

c. The ultimate disposition of water ordered, but not used or transferred by September 30<sup>th</sup>, is subject to the discretion of the District. Alternative disposition of this water may include, but is not limited to, making it available to other District landowners, outside exchange or transfer, or banking in accordance with Bureau Policies. The determination of an alternate disposition of unused water will be based on the projected end of Contract-Year District use, an individual customer's water usage history (i.e. landowners who order water that they never use may be made available to those needing water) and a scheduled Friant-Kern Canal dewatering. Water deposits may be returned after September 1<sup>st</sup> unless alternative arrangements have been made with the District.

d. Water rates are established on the basis of covering District annual Operation and Maintenance costs. To better insure those charges satisfy that financial obligation, **Contract supply shall be the first water used by landowners in the District.**

e. The Board of Directors may elect to carry unused Contract Supply (carryover) from one Contract-Year to the next in accordance with Bureau of Reclamation Policy. Unused water shall not be carried over into the next Contract-Year on an individual landowner basis; however, unused landowner water deposits may be carried over into the next Contract-Year, unless Dry hydrologic conditions are in effect.

#### 1. Dry Year Amendments

i. *Critically Dry Years:* In years with less than or equal to a 50% Class 1 Friant Division allocation, **unused landowner water deposit funds will not be creditable from one Contract Year to the next and unused water deposits will not be returned to during the Contract Year.** Landowners' with positive Contract Supply account balances will not carry those financial or water balances into the next Contract Year and as such should make arrangements to transfer any residual available Contract Supply to another District landowner prior to the start of the ensuing Contract Year.

ii. *Spot Market Water*: In years with less than or equal to a 50% Class 1 Friant Division allocation, if growers acquire and pay for water from outside sources “Spot Market Water” for their exclusive use within the District (they may also transfer such water to another District landowner), **those supplies shall be used only after their Contract Supply is used or transferred.**

**Unused Spot Market Water volumes may be carried over by landowners from one Contract Year to the next.** Landowners wishing to do so will be responsible for paying the annually established Bureau of Reclamation carryover fees and landowners understand that they assume the risk of losing such supply to spills which may occur depending on hydrology or Bureau of Reclamation operational requirements.

#### **4. ENTITLEMENT TO WATER**

a. When the demand for water is greater than the available supply, available water will be distributed equitably among those who have filed an application in accordance with Paragraph 1 and as required by California State Water Code Section 22250, which reads in part as follows:

*“All water distributed by districts for irrigation purposes shall be apportioned ratably to each landowner upon the basis or ratio which the last assessment against his land for district purposes bears to the whole sum assessed in the district.”*

b. Any landowner may assign for use within the District their full allocation pursuant to Section 22250 provided the water is first purchased in accordance with Paragraph 1.

#### **5. WATER TRANSFERS**

a. Intra-district between **same entity**: A landowner having properties in two or more of the District’s delivery systems (e.g. OCID System 7 and OCID System 11), may transfer water, without penalty, from one system to another system. The final charge for water will be based on water charges for the system in which it is used.

b. Intra-district between **different entities**: A landowner may transfer water to another landowner by **filing a signed water transfer form** with the District. The transferred water must have been purchased by the transferor prior to the transfer in accordance with Paragraph 1. The final charge for water will be based on water charges for the system **in which it is used**. The difference in cost, if any, must be paid to the District at the time of transfer. The District assumes no responsibility for collecting monies due to the transferor from the transferee. Both the transferor and the transferee must sign a water transfer form.

#### **6. WATER DELIVERY PROCEDURES**

a. Orders for turn-on and turn-off must be scheduled with the District at least 24 hours before the service is to be provided. Landowners diverting water without notifying the District of their intent to do so, may be subject to an administrative charge of \$20 per acre foot based on unordered diversions since the previous meter reading. Customers should also notify the District as soon as possible when making unscheduled changes.

**The District's policy is to deliver water in quantities and flow rates that are economically feasible and within the operating limits of the delivery systems and flow meters. Extenuating circumstances, where it may not be economical to provide water to a particular delivery point will be considered by the District on a case-by-case basis. No orders will be fulfilled that create the potential to harm the District's facilities.**

b. Water for the following day is ordered from the Friant Water Authority at 8:30 A.M. Monday through Friday. **Orders must be received at the District Office before 8:00 A.M. to receive next day delivery.** Sunday and Monday orders must be received before noon the preceding Friday. Water orders may be made as follows:

DISTRICT OFFICE – The office is open for water orders between 7:00 A.M. to 4:00 P.M. Monday through Friday. You may also place a water order by calling the District Office at (559) 626-4461. During non-business hours, water orders may be placed with the District's answering service. Alternatively, water orders may be placed by emailing the request to [ops@orangecoveid.org](mailto:ops@orangecoveid.org). District receipt of email orders will be confirmed through an email reply from District staff.

HOLIDAY SCHEDULE – The District office will be closed in observance of the following holidays: afternoon of New Years Eve, New Years Day, President's Day, afternoon of Good Friday, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and the day after, afternoon of Christmas Eve, and Christmas Day. Water orders for holidays and the day following a holiday shall be made by 8:00 A.M. on the business day prior to the holiday.

c. **The timing requirements shall be relaxed for the delivery of water for frost protection.** Frost water must be ordered by 1:00 P.M. to receive water for that night and the following day. For pumped systems, a notice as early as possible is desirable in case the system has to be filled. Order your water by System(s) and delivery(ies) and provide the desired flow and duration as you would for the regular irrigation season. When ordering, provide the District with your name and a telephone number where you can be reached, if possible, during the period when you intend to be taking water. Failure to take delivery of water that is ordered for frost protection can severely damage the District's pumps. Landowners that have placed frost water orders and later decide not to take delivery must make every effort to contact District Operation's staff to avoid being liable for damage to District infrastructure.

d. Landowners will be permitted to operate their delivery provided it is operated in accordance with District procedures. Water must be used at a rate that will accurately register on the delivery meter. Landowners shall immediately inform the District office of any maintenance required on their meter due to normal wear, vandalism, accident, or other cause. Landowners shall be responsible for all water delivered or spilled through their point of delivery.

e. A change of water from one delivery point to another on the same system will be permitted without a 24-hour notice provided that you notify the District in advance of the change to be made.

f. No person, other than a District employee unless otherwise designated, shall operate any of the District's facilities. Tampering with or changing the adjustment of any pump or valves, other than the delivery assigned for your use, is prohibited. Any interference with facilities under the jurisdiction of the District is a criminal offense and will be prosecuted accordingly.

## **7. DISTRICT LIABILITY**

a. The District is not responsible for the quality of water delivered as that ability is outside of the District's jurisdiction and control. The Friant Water Authority is responsible for the operation and maintenance of the Friant-Kern Canal and from time to time they perform treatment (i.e. application of copper sulfate or other chemicals) and or maintenance (i.e. mechanical removal of invasive weeds within the system) that may result in water of variable quality. The District communicates with the Friant Water Authority routinely and there is a concerted effort to maximize and stabilize the quality of water delivered. **Water delivered by the District is untreated.** Use of District water is inconsistent with human consumption and a violation of state law under AB 1194. Water supplied by the District is not intended to be and should not be used for residential uses or human consumption, including but not limited to; drinking, bathing or showering, hand washing, oral hygiene, or cooking, preparing food or washing dishes.

b. Water shortages may occur during any year, which may affect the amount of water furnished to the District by the United States pursuant to the District's Repayment Contract. In no event shall any liability accrue against the District or any of its officers, directors, agents or employees for any damages, direct or indirect, arising from a water shortage due to errors in operation, drought or unavoidable causes.

## **8. TAIL-WATER**

a. The District is required to regulate excessive tail-water. The District's Repayment Contract with the United States requires the District, as a provision of its conservation plan and as a condition of continued service, to ensure water is put to beneficial use. Hence, the District must regulate excessive tail-water to avoid determinations that it is wastefully or unreasonably using the federal resource (water supply). If the District is required to regulate tail-water because the grower does not do so, it needlessly expends District funds without providing specific benefit to the broad group of District landowners.

b. If the District determines that a landowner has improperly used irrigation water delivered to them, or improperly prepared the ground to receive irrigation water, such that excess tail-water, in the District's opinion, is leaving the landowner's property, the District shall notify the landowner with the appropriate steps to take to ensure that excess tail water is eliminated. If the landowner does not take appropriate steps to remedy the situation, the District will reduce and/or discontinue water delivery until the problem is rectified. Alternatively, the District may, at the landowner's expense, take corrective action in order to ensure that excess tail-water does not leave the landowner's property. Landowners will be charged the full cost to the District of any services provided to restrict tail-water runoff, and payment of these charges will be required as a condition of continued service.

# ATTACHMENT C

## MEASUREMENT DEVICE DOCUMENTATION



### FlowCom™ Register

DIGITAL DATA & COMMUNICATIONS

### MODEL FC100/FC101

### CONFIGURATION SHEET

### FLOWCOM REGISTER



#### DESCRIPTION

The FlowCom Register displays a flowmeter's flowrate and volumetric total. The FlowCom can be fitted to any new or existing McCrometer propeller flowmeter.

#### FEATURES & SPECIFICATIONS

- Retrofits to any existing McCrometer Propeller Flowmeter
- Four output options: 4-20mA Loop, Open Collector, Optically Isolated, and Contact Closure.
- Unique Units of Measurement for Rate, Total, 4-20mA and Pulse Outputs
- Factory sealed Remote and Meter-Mounted Models

<b>Environmental</b> Operating Temp: -4°F to 158°F (-20°C to 70°C) Storage Temperature: -40°F to 158°F (-40°C to 70°C) Housing Rating: NEMA 4X		<b>4-20mA Analog</b> Power Requirements: 12 to 40 VDC Transmissions: 5,000 feet max. 4mA/20mA Trim: .01 mA to .50 mA Engineering/Time Units: 22 different units	
<b>Input Signal</b> Input Compatibility: McCrometer Flowmeters Remote Distance: 100 feet max.		<b>Pulse Outputs</b> Engineering Units: 20 different units Optically Iso. Pulse Width: 80 ms Open Collector Pulse Width: adjustable Collector to emitter voltage: 50v @ 250 mA max. Pulse Width: 80 ms Max Pulses Per Minute: 30 Signal Distance: 500 feet max.	
<b>Rate Functions</b> Display: 5-digit Rate Units: 22 different units		<b>Contact Closure Output</b> Contact Rating: 30v @ 1 Amp max. Pulse Width: 80 ms Max Counts Per Minute: 30 Signal Distance: 500 feet	
<b>Totalizer Functions</b> Display: 8-digit Totalizer Units: 20 different units Accuracy: 0.25% Non-Volatile Storage: Updated hourly		<b>Power Requirement</b> Battery Type: Lithium 3.6 V Battery Life: 6 - 10 years Optional 4-20mA: Loop powered	
<b>Programming</b> Program Access: Magnetic wand Access Lockout: 4-digit code Test Modes: 4 mA and 20 mA test modes Totalizer Reset: Programming Total Reset Disable: Programming (permanent) Calibration Adjustment: + or - .01% to 10%			



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**4"-20"**  
**VERTICAL UPFLOW METERS**  
**MODELS**  
**VF27, VF28, VF29, VF30**  
**OPERATION AND MAINTENANCE MANUAL**  
**PARTS LIST**

FEATURING:  
\*STANDARD TOTALIZER ASSEMBLY  
\*MODEL CN06-2 INDICATOR-TOTALIZER  
\*CERAMIC BEARING CARTRIDGE PROPELLER  
\*ONE PIECE SEPARATOR/SPINDLE AND THREADED REVERSE THRUST BEARING CARTRIDGE



3255 WEST STETSON AVENUE  
HEMET, CALIFORNIA 92545 U.S.A.

PHONE: 951-652-6811  
FAX: 951-652-3078  
VISIT OUR WEBSITE: [www.mccrometer.com](http://www.mccrometer.com)

# ATTACHMENT D DISTRICT SAMPLE BILLS

Estimated Usage  
No

Orange Cove Irrigation District  
1130 Park Blvd  
Orange Cove, CA 93646-0308  
(559) 626-4461

## WATER USAGE STATEMENT 3/1/2017 8/23/2017

Cust No. 2

Don't forget to order water 24 hrs in advanced. If you have an emergency  
please call 626-1509. If sending water orders via email, send to:  
waterorders@orangecoveid.org

### Summary

Total AF Supply	60.000	Total AF Used	21.661	Total AF Remaining	38.339	Total \$ Remaining	\$2,135.49
-----------------	--------	---------------	--------	--------------------	--------	--------------------	------------

Cust	Seq	AF	WaterDesc	Rate	AF Remaining	Water Cost	Usage Cost
2	1	30.000	USBR Tier 1	\$65.00	8.339	\$1,950.00	\$1,407.97
2	2	30.000	USBR Tier 2	\$25.00	30.000	\$750.00	\$0.00
						Pumping Charge	\$476.54
						Total Usage Cost	\$1,884.51
				Misc Credit	\$0.00	Account Deposit	\$4,020.00
				Estimated Carry Over \$ Credit 10.0%	\$150.00	Remaining Balance After Usage	\$2,135.49
				Total Estimated Carry Over Credit/Refundable	\$150.00	Remaining Estimated Pumping Cost	\$843.46
						Remaining Water Balance	\$1,292.04

Carry Over Amount May Change Depending On Actual Pumping Cost.  
Unused/Remaining Pumping Cost Will Add to Carry Over Credit/Refund Amount.

ID 9 #30 "PLRP" HP-22 F-225

Outlet Acres: 30

Start Date	Time On	Reading	End Date	Time Off	Reading	GPM	Acre ft	Pumping Rate	Amount
4/28/2017		752.923	5/31/2017		761.251		8.328	22.00	\$183.22
5/31/2017		761.251	6/30/2017		766.106		4.855	22.00	\$106.81
6/30/2017		766.106	7/31/2017		774.584		8.478	22.00	\$186.52
AF Per Acre	0.722	Summary for ID 9 #30 "PLRP" HP-22 F-225					21.661		\$476.54
						Total Water Used	21.661	Pumping Cost	\$476.54

**ATTACHMENT E**  
**GROUNDWATER MANAGEMENT PLAN**

**This document is from 2006 and is a very large file. If you do not already have in your records, request an electronic version from OCID.**

## ATTACHMENT F

### District Agricultural Water Order Form

**Orange Cove  
Irrigation District**

**2017 - WATER ORDER SHEET**

**Fax: 626-4463**

**E-mail : [waterorders@orange Coveid.org](mailto:waterorders@orange Coveid.org)**

**DATE**      **TIME**

Name

## System

## Outlet

Date \_\_\_\_\_

Time

## Flow

### On/Off Duration

Remarks

ENTERED ENTERED

[illegible]

**APPENDIX A**

**SB7x-7 Supplemental Information  
(Attachments A-E)**

**For**

**Agricultural Water Management Plan Submittal to DWR  
Pertaining to USBR CVPIA Compliance Entities**

**by**

**Orange Cove Irrigation District**

## **Attachment A**

### **Legal Certification and Apportionment Required for Water Measurement – Lack of Legal Access to Farm-gate**

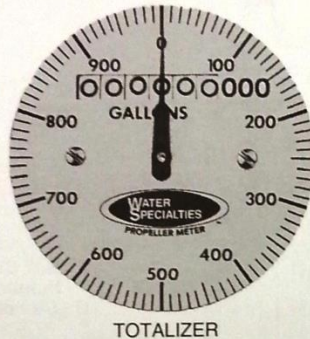
The Orange Cove Irrigation District (District) measures water delivered to each and every “farm-gate” in its system. The District’s delivery infrastructure consists of closed pressurized polyvinylchloride (PVC) pipe systems connected to the federally, constructed and owned Central Valley Project (CVP) surface water conveyance system; the Friant-Kern Canal.

District farm gate delivery quantification and subsequent District customer billing is accomplished through Water Specialties<sup>®</sup> propeller meters with either mechanical or digital registers, ranging in size from 2-inch to 6-inch diameter. The meter size depends on the acreage served by the farm-gate; otherwise all delivery installations are identically configured. The vast majority of deliveries in the Orange Cove Irrigation District are through 4-inch diameter meters, which can provide surface water demands on parcels up to 60 acres. All meters register instantaneous flow in gallons per minute and accumulating total in acre-feet. District meters are read monthly.

The Description / Specification sheet of a typical District Water Specialties meters is attached below.



**MODEL VF29**  
 VERTICAL UPFLOW TEE TUBE METER  
 SEALED METER MECHANISM - MAGNETIC DRIVE  
 SEALED TOTALIZER  
 SIZES 4" thru 20"



#### DESCRIPTION

**MODEL VF29 VERTICAL UPFLOW TEE TUBE METERS** are designed to meet AWWA specifications. The flanged end tee design permits use in a wide range of applications with up to 150 psi working pressure. The base and side outlets are 150 lb. AWWA class "D" flat face steel flanges. Fabricated steel meter tubes have straightening vanes and are protected internally and externally with 12-15 mils of NSF approved, fusion epoxy resin.

**INSTALLATION** is made to any vertical discharge line with the proper size flange connection or to vertical discharge concrete turnouts with the proper anchor bolts. The meter must be installed upright for a full flow of liquid through the pipe to assure proper accuracy. Fully opened gate valves, fittings or other obstructions that tend to set up flow disturbances should be a minimum of five pipe diameters upstream and two pipe diameters downstream from the meter.

**PROPELLER** is magnetically coupled with the drive mechanism through the sealed separator assembly. This completely eliminates water entering the meter assembly, as well as the need for any packing gland. The propeller is a conical shaped three bladed propeller, injection molded of thermoplastic material resistant to normal water corrosion and deformity due to high flow velocities.

**BEARING** in propeller is a water lubricated ceramic sleeve and spindle bearing system with a ceramic/stainless steel spindle. Dual ceramic thrust bearings, standard on all meters, handle flows in both forward and reverse directions. The bearing design promotes extended periods of maintenance free propeller operation. Bearings within the sealed meter mechanism are shielded precision stainless steel bearings and are factory lubricated for the life of the meter.

**TOTALIZER** is o-ring sealed and magnetically coupled with the driving mechanism, and features a six digit totalizer with a full 3" diameter, 100 division, center sweep dial that permits extremely accurate readings for timing purposes in determining flow rates. The totalizer dial can be furnished in gallons, cubic feet, acre feet or any standard liquid measuring units. The bonnet, with padlock hasp, can be positioned in four different directions for the easiest possible reading when the meters are mounted in unusual positions.

**CHANGE GEARS** may be easily exchanged in the field when changing the dial, or when recalibrating for different pipe sizes. It is not necessary to remove pressure from the line for these changes.

**O-RING SEALS** are used at the meter head and all points where seals are required, making the meter mechanism completely immune to any of the corrosive effects of atmospheric moisture or the liquids measured by the meter assembly.

#### SPECIFICATIONS

**ACCURACY** Plus or minus 2% of actual flow within the range specified for each meter size.

**PRESSURE RANGE** Up to 150 PSI maximum working pressure.

**TEMPERATURE RANGE** 140° F Maximum. Consult factory for special construction for higher temperatures.

**MINIMUM FLOWS** As shown for each meter size and construction are required for accurate registration. See flow chart. NOTE: Minimum flow will be higher when auxiliary equipment is added.

**MAXIMUM FLOWS** As shown for each meter size and construction are rated for continuous operation. See flow chart.

**INTERMITTENT FLOWS** as shown for each meter size are rated for 10% to 15% of the total time the meter is operating. Consult factory for High Velocity construction when intermittent flows are higher than shown on flow chart and/or when longer operating periods are required.

**MATERIALS** used in construction are chosen to minimize the corrosive effects of the liquids measured by the meter assembly.

**MAGNETS** - permanent ceramic type

**INTERIOR BEARINGS** - shielded stainless steel

**PROPELLER BEARING** - ceramic sleeve type

**PROPELLER SPINDLE** - ceramic coated stainless steel

**PROPELLER** - injection molded thermoplastic

**DROP-PIPE** - stainless steel

**SEPARATOR** - stainless steel

**SHAFTS AND BOLTS** - stainless steel

**METER HEAD** - cast iron, NSF approved, fusion epoxy coated.

**METER TUBE** - fabricated steel with 12-15 mils of NSF approved, fusion epoxy resin.

**OPTIONAL EQUIPMENT** A meter mounted Fwd. & Rev. Totalizer, Totalizer Extensions and a wide range of controls and instruments for indicating, totalizing and recording flow data for each meter. Special constructions and materials are available upon request. Must be specified by the customer and includes:

#### ORDERING INFO

Minimum & maximum flow ranges  
 Temperature of meter environment  
 Totalizer dial units  
 Type of materials and construction  
 Optional equipment desired



# FlowCom™ Register

DIGITAL DATA & COMMUNICATIONS

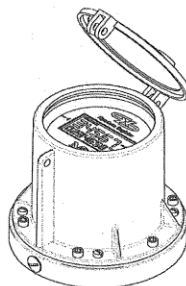
MODEL **FC100/FC101**

## CONFIGURATION SHEET

FLOWCOM REGISTER



FC100  
Mc Propeller



FC101  
Water Specialties Propeller

### DESCRIPTION

The FlowCom Register displays a flowmeter's flowrate and volumetric total. The FlowCom can be fitted to any new or existing McCrometer propeller flowmeter.

### FEATURES & SPECIFICATIONS

- Retrofits to any existing McCrometer Propeller Flowmeter
- Four output options: 4-20mA Loop, Open Collector, Optically Isolated, and Contact Closure.
- Unique Units of Measurement for Rate, Total, 4-20mA and Pulse Outputs
- Factory sealed Remote and Meter-Mounted Models

<b>Environmental</b> Operating Temp: -4°F to 158°F (-20°C to 70°C) Storage Temperature: -40°F to 158°F (-40°C to 70°C) Housing Rating: NEMA 4X		<b>4-20mA Analog</b> Power Requirements: 12 to 40 VDC Transmissions: 5,000 feet max. 4mA/20mA Trim: .01 mA to .50 mA Engineering/Time Units: 22 different units	
<b>Input Signal</b> Input Compatibility: McCrometer Flowmeters Remote Distance: 100 feet max.		<b>Pulse Outputs</b> Engineering Units: 20 different units Optically Iso. Pulse Width: 80 ms Open Collector Pulse Width: adjustable Collector to emitter voltage: 50v @ 250 mA max. Pulse Width: 80 ms Max Pulses Per Minute: 30 Signal Distance: 500 feet max.	
<b>Rate Functions</b> Display: 5-digit Rate Units: 22 different units		<b>Contact Closure Output</b> Contact Rating: 30v @ 1 Amp max. Pulse Width: 80 ms Max Counts Per Minute: 30 Signal Distance: 500 feet	
<b>Totalizer Functions</b> Display: 8-digit Totalizer Units: 20 different units Accuracy: 0.25% Non-Volatile Storage: Updated hourly		<b>Power Requirement</b> Battery Type: Lithium 3.6 V Battery Life: 6 - 10 years Optional 4-20mA: Loop powered	
<b>Programming</b> Program Access: Magnetic wand Access Lockout: 4-digit code Test Modes: 4 mA and 20 mA test modes Totalizer Reset: Programming Total Reset Disable: Programming (permanent) Calibration Adjustment: + or - .01% to 10%			

**McCROMETER**  
www.mccrometer.com

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